

Path planning for mobile robot based on reactive collision avoidance method

ABSTRACT

Background: The number of research regarding local path planning of the Unmanned Ground Vehicle (UGV) is increasing widely. The Modified Virtual Semi Circle (MVSC) approach is proposed for real-time path planning. This research proposes the implementation of five ultrasonic range finder sensors with a very small blind zone existence in the sensor arrangement. The navigation of the mobile robot depends on the position of the mobile robot in the influence zone area. The formation of three layers of influence zone shows the optimized path planning without making any unnecessary obstacle avoidance presence. **Objective:** The purpose of this paper is to navigate a cost effective UGV known as MG-TruckS with optimal path planning. **Results:** The implementation of MVSC produced shortest path, smoothness of the velocity and successfully avoids collision with the obstacles to reach it predetermined target. **Conclusion:** MVSC propose a simple path planning that requires low computational cost and do not demand for a very large memory.

Keyword: Local path planning; Unmanned ground vehicle; Modified virtual semi circle; Situated-activity paradigm; Blind zone